

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD—  
LOS ANGELES REGION101 CENTRE PLAZA DRIVE  
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May 14, 1990

Thomas W. Klinger  
County of Los Angeles  
Department of Health Services  
2615 Grand Avenue  
Los Angeles, CA 90007WELL INVESTIGATION PROGRAM-SUBSURFACE INVESTIGATION, ITT AEROSPACE  
CONTROLS, 1200 FLOWER STREET, BURBANK, (FILE NO. 104.0582)

As agreed upon in the meeting held at the ITT Facility on December 5, 1990, we are providing to you comments based upon our review and evaluation of the "SOIL GAS SCREENING OF THE ITT AEROSPACE CONTROLS, BURBANK, CALIFORNIA," report, dated March 1990, prepared by Roy F. Weston, Incorporated. Our comments are as follows:

The soil gas survey appears to have been quite effective, based upon the grid system used in initially identifying the vapor plume within those areas investigated onsite. The highest concentration of total volatile chlorinated hydrocarbons greater than 1000 mg/l were detected at soil gas sampling points completed in close proximity to the previous underground piping, underground tanks, sumps, clarifiers, and chemical/waste storage areas and extending to the southeast and encompassing sample points in the northern, eastern, and southern quadrants of Building 3, the northern quadrant of Building 2, and extending into the entire northeastern area of the site where Building 8 was previously demolished. Soil gas concentrations remain relatively high towards the eastern area of Building 4. Additionally, the soil gas vapor point analyses completed in the southern section of Building 2, indicate that the vapor plume extends offsite in a southward trending direction.

Contaminants detected in soil gas samples consist primarily of 1,1,1-Trichloroethane (1,1,1-TCA), Trichloroethene (TCE), Tetrachloroethene (PCE), 1,1-Dichloroethene (1,1-DCE), 1,1-Dichloroethane (1,1-DCA) and to a lesser extent Trans 1,2-Dichloroethene, 1,2-Dichloroethane, 1,1,2,2-Trichloroethane, 1,1,2,2-Tetrachloroethane, Chloroform, Carbon Tetrachloride, Freon, Methylene Chloride, Vinyl Chloride, and Acetone, as well as aromatic hydrocarbons Benzene, Toluene, Xylene, Ethylbenzene, and

124687

Thomas W. Klinger  
Page 2

Chlorobenzene and lower molecular weight petroleum based hydrocarbons as indicated in the report.

Although "Quant" Reports were included in the report, none of the QA/QC documentation was provided for review and evaluation. A revised laboratory report must be submitted containing all data listed on page 4 (Soil Gas QA/QC Procedures.)

Subsurface soils investigations completed within these areas onsite, by previous consultants, provide data to forty-seven (47) feet below ground surface, which indicates similar chlorinated hydrocarbons, aromatic hydrocarbons, and low molecular weight petroleum based hydrocarbons occur with depth at many of the locations identified above. The report made no attempt to correlate any of this data as it relates to known and suspected point sources already identified onsite.

As indicated in the "Site Characterization Report and Action Plan for ITT Facility," the next phase of assessment to be completed onsite will include only soil test borings. Although we agree that soil test borings are necessary to further delineate the lateral and vertical extent of the extensive soil contamination identified onsite. Initial hydrogeologic assessment, including the installation of ground water monitoring wells must be incorporated into any proposal for further onsite characterization, at this time.

Ground water underlying the site is used for domestic purposes as well as for other beneficial uses. Further, ground water underlying this area of Burbank is approximately seventy (70) feet below ground surface. Based upon the number of years of operation at this site, the number of known point sources, and the number of contaminants identified, a conceptual approach to ground water monitoring must evaluate upgradient areas, at known and/or suspected sources, and at downgradient areas onsite.

An appropriate number of monitoring wells must be installed at compliance point locations for the facility, in order to determine ground water quality migrating onsite as well as leaving the site.

Soil test borings and monitoring wells should be continuously cored insofar as possible. Other methods of lithologic and geophysical logging must be used to adequately identify and characterize subsurface lithology. Logging must be performed by qualified geotechnical personnel.

Enclosed for your reference are the Regional Board's Workplan requirements for Initial and Supplementary Subsurface Engineering/Geologic Soil Investigations. Soil borings must be completed to further characterize geologic materials beneath the

site. The borings must be placed at locations to adequately confirm or deny data obtained from previous soil investigations, and from the recent soil gas survey.

An evaluation of chemical analysis must be completed and an analytical testing protocol must be developed to incorporate testing for all constituents of concern. In addition, complete QA/QC report information must be provided.

We have received the transmittal from Ms. Theresa Holcomb of ITT Aerospace Controls containing additional historic information. Our preliminary review indicates that only selective data has been provided. Notable omissions include, but are not limited to the following:

- a. The submitted selection of Boring Logs for soils investigations is not complete. Missing are boring logs for soils investigations in the "BD-..." series; the numbered series relating to Buildings 2 and 3; and the pit area outside Building 3.
- b. All maps stating locations for soil borings and samples taken from Buildings 2 and 3, and the pit area were not submitted. As an example, no location map was submitted with either set of boring logs numbered 1 through 35, and no location maps depicting contaminant concentrations were submitted for any soil borings or soil sampling locations.
- c. The suite of laboratory chemical analysis sheets which correlate with all soil test borings and soil samples taken was incomplete. All analytical test results sheets from the testing laboratory must be submitted. As examples, the "BD-...", and the "1-35" series of samples were omitted. Also all supporting QA/QC documents are required to be provided. Laboratory QA/QC data must include, at a minimum: calibration check compounds, reagent blanks, laboratory control standards, matrix spike/matrix spike duplicates, and surrogate recoveries. Laboratory analysis for volatile organic compounds must meet EPA practical quantitation limits of 5 to 10 ug/kg, at a minimum.
- d. The specific chain of custody forms for each shipment of soil, sludge, water, or other media samples submitted to each laboratory were not submitted. Each "Chain of Custody" form contains signatures of both the person submitting the sample from the field sampling site and the person receiving the sample at the laboratory, and includes dates of sampling and submission to the laboratory. All of these "Chain of Custody" forms must be submitted.

Thomas W. Klinger  
Page 4

1.) As an example, one (and the same) chain of custody form was submitted with several different sets of chemical analyses. The chain of custody form was printed with varying degrees of darkness, but appears to be the same form. Explanations for this type of discrepancy are required.

2.) As another example, two sets of the boring logs for borings 1-35 have been submitted, however neither set has a location map on which the borings can be identified.

A detailed evaluation of this data provided will be made to determine the completeness of submitted original data pertaining to the case.

If you have any questions, please contact me at (213) 266-7539, or Elizabeth Lafferty at (213) 266-7540.

  
DAVID A. BACHAROWSKI

Environmental Specialist IV

cc: Ms. Theresa Holcomb, ITT Aerospace Controls  
✓ Ms. Alisa Greene, U.S. Environmental Protection Agency,  
Region 9  
Ms. Annie L. Burke, A. L. Burke Engineers  
Ms. Susanne Kraemer, Roy F. Weston, Incorporated  
Mr. Mel Blevins, ULARA Watermaster  
A. Harney Company  
Mr. Jorge Leon, Office of Chief Counsel, State Water Resources  
Control Board

STATE OF CALIFORNIA  
California Regional Water Quality Control Board  
Los Angeles Region

WORKPLAN REQUIREMENTS  
for  
INITIAL SUBSURFACE ENGINEERING/GEOLOGIC SOIL INVESTIGATION  
(WELL INVESTIGATION PROGRAM)

The objective of this engineering/geological investigation is to evaluate potential waste discharges which may impact ground water. Your workplan should include, but not be limited to, the following:

**SITE INFORMATION:** Characterize past and present specific business activities. List any previous businesses at the site. Describe storage, handling, use, and disposal procedures for chemicals, primarily chlorinated organics or aromatic solvents. Give name, address, and phone number of any landlord/lessor.

**FACILITY MAP:** Identify on a scaled facility map all potential sources for contamination, past and present. Examples include: chemical and waste storage, transfer and use areas including tanks and piping, clarifiers, sumps, pits. Indicate dates of completion of buildings or pavings where possible.

**SITE SOILS AND GEOLOGY:** Determine if site discharges have entered the vadose zone, define sources, and provide background geological data for the area. Use EPA or State Department of Health Services guidelines.

1. Provide rationale for the number and location of borings. Plot on facility map.
2. Provide reasons for proposed depth of each boring if less than the generally required depth of 40 feet. Additional depths may be required if ground water is encountered or if there is obvious contamination in the boring.
3. Identify proposed construction methods for borings.
4. Log all borings to provide characteristics of unconsolidated material per Unified Soil Classification System as well as all other appropriate information.
5. Provide a sampling plan to include equipment and procedures for collection and handling of geologic materials. A sampling interval of 5 feet, each change in lithology or changes in observed contamination is required starting at just below surface or surface covering.

6. Comply with chain of custody procedures. Discrete, undisturbed samples will be taken, sealed, and transported to the laboratory for analyses. Samples submitted for laboratory analyses are not to be used for field screening.
7. The proposed laboratory must be State Department of Health Services registered for each analytical procedure specified. EPA Methods 8240 or 8010/8020 are required. Supplement with Methods necessary for any site chemicals, past and present.
8. At a minimum, EPA sample holding times and conditions must be observed. However, samples held over seven (7) days may be suspect and not considered representative of site conditions.
9. EPA practical quantitation limits (5 to 10  $\mu\text{g/kg}$  for selected VOC) are required. Analytical results must indicate detection limits and whether a chemical potentially exists (trace).
10. Minimum laboratory QA/QC requirements include: field and reagent blanks, calibration check standards, matrix spiked duplicates, total recoverables, laboratory quality control sample.

GROUNDWATER (HYDROGEOLOGY): Ground water must be sampled if any boring encounters a saturated zone. Site specific exceptions may be made in consultation with Board staff.

1. Provide a contingency plan for conversion of borings that encounter saturated zones to ground water sampling wells. This should include permitting and well design, construction, and development specifications.
2. Provide protocols for field analysis, water sampling, handling and transport.
3. EPA Methods 601/602 or appropriate 500 Series Methods must be used plus any appropriate EPA Methods for nitrates and any other chemicals used on site.

ADDITIONAL REQUIREMENTS:

1. Submit a copy of the results of any previous subsurface investigations conducted at the site.
2. Submit a time schedule. The proposed activities must be completed within 6 to 8 weeks of plan approval.
3. A CALIFORNIA REGISTERED GEOLOGIST OR ENGINEER OR CERTIFIED ENGINEERING GEOLOGIST WITH FIVE YEARS SOILS OR HYDROGEOLOGIC EXPERIENCE SHALL DIRECT OR CONDUCT THESE INVESTIGATIONS AND PROPERLY SIGN OFF THE FINAL REPORT FOR THE REPORT TO BE ACCEPTED AND APPROVED.
4. Work shall not be proceed without prior approval and staff notification at least one week prior to initiating field work.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
LOS ANGELES REGION

SUPPLEMENTARY ENGINEERING/GEOLOGIC SUBSURFACE INVESTIGATION  
(WELL INVESTIGATION PROGRAM)

DATA REQUIREMENTS: All requirements in the WORK PLAN REQUIREMENTS for INITIAL SUBSURFACE INVESTIGATIONS must be met in conducting this additional investigation.

UNSATURATED ZONE (SOILS)

1. Ascertain lateral and vertical extent of contamination.
2. Determine soil properties which affect contaminant mobility in the vadose zone. Relate the specific residual contaminants with their potential long term effect on ground water quality.

SATURATED ZONE (WATER)

1. Determine specific aquifer properties for correct siting of monitoring well(s). Use of piezometer clusters is encouraged to ascertain aquifer properties.
2. Determine lateral and vertical extent of contaminant plume.

PROCEDURES

SOIL BORING

1. Justify and plot location(s) for soil sampling.
2. Explain sampling depth and drilling method.
3. Have an appropriately registered or certified personnel sign off boring logs.

DRILLING/SOIL SAMPLING

1. Describe sampling procedures:
  - o Method and equipment used to collect the samples with minimal loss of volatiles.
  - o Sampling interval (5 feet or at significant changes in soil/lithology as noted on the boring logs).
  - o Number and type of soil samples (only discrete, undisturbed samples are acceptable).
2. Sample water from any boring which penetrates a saturated zone after converting to a monitoring well or piezometer.

MONITORING WELL CONSTRUCTION/DEVELOPMENT

1. Include in the well design, specifications and construction details such as:
  - o Casing and screen materials, screen length and placement with respect to water table etc.,
  - o Proposed depth and type of annular seal,
  - o Time for cement to set before commencing development.
2. Provide for appropriate logging by qualified personnel.
3. Characterize aquifer materials for proper selection of filter pack and screen. Only commercially slotted screens are acceptable. Less than 10-20% of the filter pack should enter the well.

4. The boring should not penetrate a competent clay layer below the saturated zone.
5. Casing must be suspended and centralized such that it is not resting against the sides nor bottom of the hole prior to fixing in place.
6. Place grout of either cement or cement/bentonite in an appropriate manner to avoid bridging.
7. Establish benchmarks relative to mean sea level. Provide benchmark location and survey date. Measure water levels to 0.01 foot. Also provide well location using UTM Coordinates.
8. Describe methods to develop well such that the waters sampled are representative of the formation water. The water sampled must have less than 10 ppm settleable solids.

#### WATER SAMPLING

1. Describe details of sample collection:
  - o Water sampling devices to be used,
  - o Procedures to minimize loss of samples by adsorption and/or volatilization,
  - o Purge techniques, tests (temp., pH, conductivity) to assure the collection of a representative water sample.
2. Describe methods for handling the samples collected.

#### SAMPLE ANALYSES

##### GENERAL

1. The laboratory must be certified by the California Department of Health Services for the specific required procedures.
2. Laboratory procedures must be specified and QA\QC sheets must be submitted with the results in the technical report.
3. Limits of detection must meet EPA's practical quantitation limits.
4. Proper chain of custody procedures must be used.

SOILS: Specify EPA Methods to determine existing facility contaminants, also use the required EPA Methods 8240, 8260 or 8010/8020 to quantify volatile organics to EPA's practical quantitation limits. Specify detection limits.

WATER: Specify EPA Methods to quantify contaminants found in soil, also use EPA Methods 601/602 or applicable EPA series 500 method. Specify detection limits. Submit samples to the laboratory in unfiltered form and report sample turbidity.

#### REPORTS

Four copies of final reports should be submitted with all information requested.